

COLLOQUE

Rydberg atoms and quantum simulation

De 14 h à 18 h – Amphithéâtre Maurice Halbwachs, Site Marcelin Berthelot

Quantum simulation aims to develop platforms capable of solving questions that arise when studying a complex system. These questions, often simple to formulate, are difficult to address analytically or numerically. The simulation of one system by another, governed by the same laws of evolution but more controllable, then provides an original approach to the problem. Assemblies of neutral atoms, possibly prepared in a Rydberg state, are very promising because they allow fine control of the geometry and strength of the interactions. The speakers will review this new field of research and outline its main prospects for development.

PROGRAMME

14:00-14:35 :

Guido Pupillo (Université de Strasbourg et Centre Européen de Sciences Quantiques, ISIS (U. Strasbourg et CNRS))

*Multi-qubit gates with neutral atoms:
Towards fault-tolerant quantum computing*

14:35-15:10

Monika Aidelsburger (Max-Planck-Institute of Quantum Optics, Ludwig-Maximilians-University Munich, Munich Center for Quantum Science and Technology)

*Quantum simulation of Floquet topological systems
with ultracold atoms*

15:10-15:45

Thomas Ayril (Eviden Quantum Laboratory)

*Combinatorial optimization with Rydberg platforms:
advances and challenges*

16:15-16:50

Thierry Lahaye (Laboratoire Charles Fabry, Institut d'Optique)

*Exploring the properties of the dipolar XY model
with arrays of Rydberg atoms*

16:50-17:25

Benoît Vermersch (Université Grenoble Alpes, CNRS, LPMCMC)

*Robust universal quantum processors in spin systems
via Walsh pulse sequences*

17:25-18:00

Clément Sayrin (Laboratoire Kastler Brossel)

*Interacting Laser-Trapped Circular Rydberg Atoms
for Quantum Simulation*

Vendredi 5 avril 2024

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Colloque en anglais

Organisation :

Michel Brune & Jean Dalibard

CHAIRE ATOMES ET RAYONNEMENT

COLLÈGE
DE FRANCE

— 1530 —

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